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WINTERING BALD EAGLES AT GUTTENBERG, IOWA —CASSVILLE, WISCONSIN, 1964-65

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APPLE RIVER, ILLINOIS

This study is the continuation of a study that had been started two years ago by the author. Eagles had been known to winter in the Cassville region ever since the two power plants were constructed. However, it was not until the author started his intensive study of the area that the importance of the Cassville area to wintering eagles was realized. No records were kept and no extensive observations were made of the eagles near Cassville before the author started his study.

During the previous two winters the author was teaching college and could spend only his weekends studying this, our national emblem. The weather would change or some other unknown event would take place during the week and affect the eagles. When the author would return the next weekend, conditions would be entirely different. Because of this he could not gain the needed information about the movements of the birds.

This is the reason that the Southwestern Wisconsin Audubon Club decided to sponsor this study. If they could locate the needed finances for his study the author would be able to spend his full time in the field. The purpose of this year's study was: to observe the eagles in order to learn more definite information about their habits, to try to bait and trap the eagles so as to band and color-mark different individuals, and to try to determine if the eagles are getting chemical poisons from the food they are eating while in this area.

The study area at Cassville consists primarily of two parts. The main or lower part is the river area near the town itself where the main attraction for the eagles is the open water present at all times just below each of the power plants. This open water contains many of the fish that are washed off the screens in the power plants. During certain periods of the winter, thousands of fish are killed or injured by these screens. It is around these open holes near the power plants and Jack Oak Slough, a slough just south of town lined with cottages, that the eagles concentrate during cold weather. Near the Nelson Dewey Park is open water which flows over a wing dam. A few eagles stayed near this open water all winter. The maximum number of birds seen in this lower part of the study area this winter was 143 adults and 9 immatures. There are two known eagle roosts in this lower part. One is in a valley at the south end of Jack Oak Slough; the other is located on the islands across Jack Oak Slough from the Cassville Airport.

The second part of the study area is just south of the dam at Guttenberg, Iowa, north of Cassville. There is open water at all times in Acherman's Cut, a narrow slough with a very fast current coming from the main channel to the sloughs on the Wisconsin side of the river. There is also a sand bar on the Wisconsin side of the cut which is an excellent open area for placing bait. The eagles are usually seen sitting in the trees around this sand bar and open water. The maximum number of birds seen in this section of the study area during the winter was 22 adults and 8 immatures. Near this area are three known roosts. Two are in valleys adjacent and parallel to the river. The third is right beside Acherman's Cut on the islands.

Several persons reported seeing an occasional eagle in the study area

during the summer and early fall. The author, himself, saw an eagle on several occasions during October. However, the first detectable migration was observed on November 21, when the author and some of his helpers saw a total of 17 eagles (8 adults and 9 immatures) migrating south along the bluffs north of Cassville. At the time there were 3 or 4 birds in the study area feeding and roosting. Most of the birds migrating were not stopping in the study area. Some of them were flying along the bluffs all the way, even over the town of Cassville itself. Others were flying directly south. They used the bluffs as long as they could but when the river turned east the birds continued straight south over the river.

The first birds were observed at 3:00 P.M. The last bird was observed at 3:45. There is a good possibility that more birds migrated south that day but were not seen by the author. The birds were flying about 2 miles apart. Thus there was a bird passing overhead just about every three or four minutes. By climbing to the top of the bluffs a person could get very close to the birds as they flew just above the trees. Because the birds were utilizing the wind currents to such a great extent, one bird would follow almost the identical path of another through the sky.

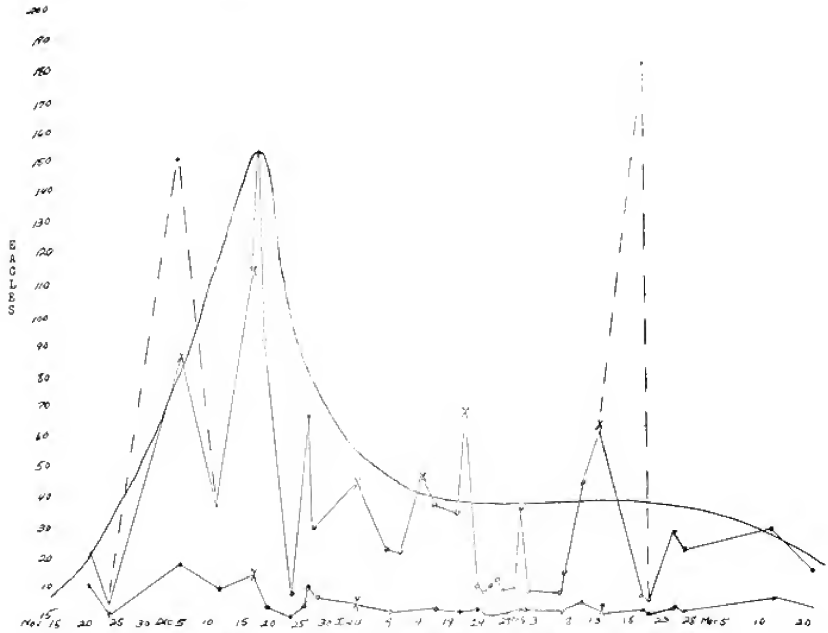
The author was unable to be at the river every day due to the lack of funds. The only other day during which a southerly migration was observed was December 6 when 24 adults and 5 immatures were observed flying straight south. That is, that they followed the bluffs south until the river turned east then the birds would swing over the river straight south. On this day the birds were first seen at 11:00 and were still flying south at 3:00 in the afternoon. Because an attempt was made to determine the path of migration an accurate count was not made of the migrating birds. Considering the spot checks which were made of the migrating birds and comparing the results with other migrating days, at least 150 birds flew over the study area on December 6th. As on other days, the birds were spread apart so that there was an interval of several minutes between birds. By looking each direction, a person could see a total of five to six birds at a time. The author made no attempt to check the speed of the birds as was done during the spring migration.

Because the author was not at the river every day, he does not know if the eagles were migrating every day. Because the birds seem to be inherently lazy it is believed by the author that they do not migrate south until they have a northwest wind to aid their flight. Then the river bluffs offer a fairly straight southerly path for the birds. That is a path of continuous updrafts on the Wisconsin side of the river. The birds make extensive use of these updrafts because they migrate most of the way with no wing beats. Depending on the amount of wind the birds may average as few as one or two wing beats per mile. By realizing this a person can see how these birds could migrate great distances and never get tired or even hungry.

This winter the concentration of birds in the study area was very close to what it was during the winter of 1963-64. The graph shows the change in the eagle population throughout the winter. The number of eagles present on a particular day as shown by the graph is not really accurate. Only on occasional days was a full or complete count taken. The reasons for this are explained under the section on observations of daily movements.

The one item which the graph does not show is what the eagles are doing each day. The graph shows all eagles seen by the author in the area during that particular day. It does not tell how many were staying in the area, how many were moving out of the area, how many were moving into the area, or how many were just flying over the area. The best example of this is the day of February 20th. On that day only 7 eagles

were seen resident in the study area but at least 200 birds were estimated flying north over the area. The next day only 6 eagles were seen residing in the area but 5 more were seen flying back south. Because of these reasons the number of eagles shown by the graph must not be accepted as the number of birds feeding, fishing, and roosting in the area on a particular day.



EAGLES PER DAY, CASSVILLE, WISCONSIN

Dots are observations by Mr. Ingram
 Stars are observations by Mr. William Bair
 Dashed lines are minimal estimates of migrants

As can be seen from the graph there was a large influx of birds during the first couple of weeks in December. The author believes that the main reason for this is the fact that the eagles are pushed south because of the lack of open water farther north. They use the river bluffs as an aid in migration. The updrafts caused by a westerly wind are strong enough to sustain the birds' flight with no wing movements. Thus they can glide or soar for miles without a single wing beat. When they reach Cassville on their way south they find open water with many injured floating fish. This combined with suitable habitat for roosting induces many of the birds to stay around for a couple of weeks. About the first part of January, for some unknown reason, the quantity of fish injured by the power plants starts to decrease. As the quantity of floating fish in the open water decreases, the number of eagles gradually decreases also. The author believes the birds move on farther south to other areas. However, as the decrease in the quantity of fish usually corresponds to an increase in temperatures, there is a possibility that the eagles just move inland away from the river to hunt for prey other than fish. If this should be the case, the next cold wave should bring the birds back to the river. It does to a certain extent but not to the large numbers present during the first part of December. It is believed by the author that many of the birds move inland and also south so that when the next cold wave occurs

they move back to the river near one of the major wintering areas south of Cassville.

One interesting item which is shown by the graph is the change in the percentage of immatures in the population throughout the winter. The population was composed of 20 to 25% immature birds during the beginning of the winter. This decreased to between 6 to 10% during the last part of the winter. This is not believed to be the result of death of the immatures because as the day of February 20 shows, when the birds were seen migrating north, one out of every three birds was immature. This would seem to indicate that the immatures must winter somewhere farther south.

A smooth curve has been drawn on the graph to try to give a much closer estimate of the number of birds in the study area. That is, the birds which stay for at least several days and are seen feeding and roosting in the area. The most interesting quality of this smooth graph is that it levels off during the last of January and first part of February. This tends to indicate a reservoir of 35 to 40 birds which stay somewhere near the study area and come back to the area during cold and stormy weather. Where they go on warm clear days is not known.

This winter the river opened up during the last of January and by the 10th of February was open about 8 miles south of Cassville. On that day Mr. Bair took the author down this open water with his motorboat. The count taken on that day matches very nicely with the smooth curve. This may indicate that the eagles do not go inland but just spread out to other open holes in the ice. This is not a known fact yet but it is something to look for in other years.

The stars on the graph indicate counts taken by William Bair. During the latter part of January and first part of February his counts average about 20 birds greater than the author's. The reason for this is the fact that Mr. Bair was able to check the open water south of Cassville, which as stated above had extended about 8 miles south by the 10th of February. As shown by his counts the possible reservoir of birds in the area was closer to 55 to 60 birds than 35 to 40, as found by the author.

One of the dotted lines on the graph includes the day of February 20th. On that day at 9:30 in the morning the author saw a few eagles flying north above the bluffs at Potosi about 12 miles east and 2 miles south of the study area. As the birds seemed to be following the bluffs up river the author drove on to Cassville. When the river was reached about one mile south of Cassville a total of about 15 birds could be seen circling the bluffs and flying up river. Eagles were observed migrating all day until 4:30 in the afternoon when the author had to leave the area. As per other migration days the birds were flying about $\frac{1}{2}$ to one mile apart. Occasionally there would be groups of 6 to 8 birds passing the observation points. Thus there was an eagle flying overhead on an average of every two minutes. The author did not get a complete count of the migration because he spent some time trying to determine the route and speed of the birds. However, by using the rate of 30 birds per hour at least 180 birds flew over the area during the day. This is the very minimum. It is believed that the number was between 250 and 400. These estimates are made from counts made per half hour or hour. Throughout the entire day from one to fifteen eagles could be seen at any time.

The birds were not observed flying out over the river nor inland away from the river. Therefore, they must be using the river bluffs as an aid in migration all the way. Birds were sighted 2 miles south of Potosi and all along the river past the dam at Guttenberg. This is about 25 miles of river bluffs over which it is known that the eagles migrate. If more

help had been available it would be very informative to know if they were still following the bluffs north of Prairie du Chien, another 20 miles north.

Several hours were spent by the author and members of his crew on top of the bluffs south of Cassville watching the eagles fly past and attempting to take pictures of them. The eagles were so intent on moving north that they did not seem to pay attention to what was ahead of them. Many of the eagles flew just over the trees and would get within 60 to 100 feet of the nearest person before veering off and flying either around or over him. One of the author's secretaries was lying under a small red cedar tree and an eagle came within 15 feet of her before veering away. This is the closest that any of the author's helpers has been able to get to an uncaptured eagle.

A person could get excellent pictures of the birds flying during a migration of this type. With a good telephoto lens some excellent pictures could also be taken of the birds' aerial displays. This facet of eagle study may have a very excellent future. A few blinds placed in proper positions on these bluffs would enable many persons to observe the eagles at close hand and also to take pictures of them in the future.

The most interesting fact about the migration is the high number of immatures present. About one out of every three birds observed by the author was an immature. Projecting this average with the total number of birds predicted migrating gives at least 60 immatures migrating over the study area. This is in contrast to 18, the highest number of immatures seen in the study area during a single day all winter.

Because of a shortage of funds the author could not be in the field every day again as was the case in December. However, on several days after that date eagles were observed migrating north following the very same route as on February 20th. On the 13th of March, 9 adults and 2 immatures were observed in a period of 45 minutes. The birds had been occasionally flying north all day but because the author was busy checking roosting areas he could not observe all day with only 6 birds being resident of the area. It is believed that at least 60 birds flew over the study area on this date. On March 20th at least 20 birds migrated north. On March 27th five were observed migrating in a one-half hour period. Because these were the only days during which the author was near the river there is a good chance that the birds were migrating on almost every day after February 20th.

The weather seems to be the biggest item affecting the movements of the eagles both during the winter and during their migrations in early and late winter. The author has found that by knowing the habits of the eagles and the weather he can predict with reasonable certainty where the eagles will be and what they will be doing on a certain day. After studying the graphs of the weather conditions the author can see a very definite similarity between various days throughout the winter. The days with low numbers of eagles in the area seem to have a very similar weather pattern. Likewise, the days with high numbers of eagles in the area seem to have similar weather patterns. Rather than express many theories about the reasons for these similarities, the author will just attempt to point them out. It is hoped that the reasons for these similarities can be discovered; then we would be on the way to save the eagles.

As seen on the graph, low numbers of birds were seen in the area on December 12, December 24, and for about two weeks from January 25 to February 7. On December 12 and 24 the temperatures were quite warm. This is in direct contrast with January 25 to February 4 during which the study area experienced its coldest wave of the winter. On February 20

which was another low count for the area but a big migration day the temperature was about the highest it had been all winter, but was immediately followed by a cold wave during the next few days. This cold wave is indicated by the observed southward migration of a few eagles on February 21. The item which is similar for all of these periods is the wind direction. It was always from a westerly direction except for January 31st at which time it was from the south-southeast (SSE). This is shown on the eagle graph by an increase in the number of birds in the study area from 9 to 35 and then back down to 8 the following day. From where the eagles came for one day and to where they disappeared is unknown.

The sky was completely overcast on December 12 and 24. During the period of January 25 to February 7 it was mostly clear except for the day of January 31 which was mentioned above, at which time it was cloudy. During that period, January 25 to February 7, the study area received seven inches of snow. On February 20 it was partly cloudy.

Using days of low eagle numbers as a criteria for judgment we can come to the following conclusions. There are few eagles resident in the study area during warm weather when the birds are possibly migrating. However, during mid-winter the reverse is true as there are few eagles in the study area during a prolonged cold spell. There is a very interesting correlation between the wind direction and the low eagle numbers for both times.

By checking the high count days with their corresponding temperatures an interesting fact that may be observed is that the high days just about always come right after a minimum temperature. This even accounts for the day of January 31st. Because counts were not taken on the days of January 10, February 4, and February 25 there are no exceptions to this fact found in the study. However, because counts were not made on these days we also lack definite proof of the fact.

By considering the minimum and maximum temperatures, another very interesting fact is shown. The lowest minimum does not always match the lowest maximum. It seems to always lag behind one or two days. Thus the day with the lowest minimum for a cold wave has the highest number of eagles present in the study area. This holds true for all days for which counts were taken except for the day of January 31st which was in the center of the most severe cold wave of the season. The eagles on this date seem to be affected most by the wind direction.

By checking the wind direction the author can see a possible reason for the high count day of December 19th and possible rapid decline of birds present in the area. The birds had probably been migrating on the 18th which was a clear day with winds out of the southwest (SW). On the 19th the sky was overcast with the wind out of the southeast (SE). The following day the sky was only partly overcast with the wind out of the SW again. Thus the eagles probably stopped on the 19th because of a head wind and overcast sky. When the weather turned favorable the next day the birds may have moved on. Because the author was not able to get to the river on that day this is just a theory. If the theory were correct then the wind has more effect on migration than sky cover. This could also account for the high count day of December 27th as the wind was again in the ESE after several days of N or NW winds. The count of December 27th was not as high as the 19th which may indicate that the southerly migration had passed its peak.

From analysis of the data there are two items that are very evident. The first is that the author did not take counts on certain days that could possibly have helped support possible theories on the cause of the eagles'

movements. The second is the fact that the wind direction seems to be the only characteristic of the weather that is completely in direct relation to the high and low counts of the birds. A certain amount of deviation is present with other weather characteristics due to migrating eagles during December and the latter part of February. However, there is a certain amount of consistency in spite of these deviations.

Basically, the eagles' winter movements are of two types. One is a movement into or out of a wintering area. The other is movement within the area. The area at Cassville is roughly 10 to 15 miles long with the major concentration of birds at both ends. The reason the two parts are combined into one is that many times eagles have been observed moving back and forth between the two parts in one day. That is, they may fish in one part during the day and roost in the other at night.

To the knowledge of the author the Cassville area is the northernmost major wintering area on the Mississippi River. The next major area south is just north of Savanna, Illinois, and south of the dam at Bellevue, Iowa. This area is about 50 miles southeast of the Cassville area. Even though the birds could easily fly back and forth between these two areas in a day, they have not been observed doing so. During the winter it seems to take a change in the weather or a change in the food conditions to cause the birds to change major areas.

As was mentioned before, the main movements after December 12th were not observed as definite migrations. The graph shows, however, a decrease in the population after December 19th. It is assumed that these birds went farther south to other wintering areas. It is believed that this is a gradual move and not a movement of many of the birds on one day. Because the author was unable to be in the field every day this is not known for certain. The graph shows a large drop the next day but this is because the area around Acherman's Cut was not checked on that day. The graph shows a low count on December 24th. This low count may be the result of warmer weather which caused the eagles to move away from the main fishing holes. Where the eagles were is unknown. A very thorough check of the whole study area was made but the eagles were not present. It is assumed that not all of them moved south as shown by December 27th. An influx of birds back into the area came on this day after one day of cold weather and three inches of snow. It is unknown whether some of these birds were the same ones that were seen on December 19th or whether they were new birds migrating south. This is where color-marked birds would have been a great asset in determining the birds' movements.

The author used his car for making most of the observations. However, to get an accurate count of the area a person had to climb to the tops of the bluffs in at least three different locations to see the eagles out on the islands. Because of this a complete count of the area would take two or three hours every day. This is one of the reasons why complete counts were not taken except at intervals of once every week or two. Also because the car was used for taking counts, complete counts could not be made because of road conditions. Many times a car could not get up Acherman's Cut because of deep snow, too much ice, high water, or mud.

Another reason why the graph is not accurate is because the counts were not always made when the most birds were able to be seen on a particular day. If the eagles had been undisturbed the best time for taking counts was during the morning feeding period about 10:00 A.M. However, if the eagles had been disturbed then this may not be the best time. If the birds left the area just before a count, that count would be lower

than it should be. These possible disturbances by fishermen and bird watchers may be the cause for a few of the inconsistencies found on the graph. If a count could be taken from a plane or helicopter then the eagles that had left the feeding areas could be found and counted.

As can be shown by the stars on the graph during January and February, the use of an ice-boat aids tremendously in getting accurate counts of the eagles in the area. By the aid of an ice-boat, a person can get much closer to the eagles and can check areas which are impossible to get to by car or canoe. The counts made by Mr. Bair show about 20 birds more than the author had seen in the area. This is because there were about 20 birds wintering six miles south of Cassville at Berton Lake. It is impossible to count these birds except by plane or from a boat. Because of this, either a helicopter, plane, or ice-boat is needed in the future to obtain more accurate information on the population changes and movements of the eagles.

To aid in observing the birds' habits and also for watching the trapping areas two blinds were constructed. Both blinds worked very well. The eagles seemed to pay very little attention to them. In fact one eagle even fished within 60 feet from one of the blinds while the author was in it. The eagles many times would sit in the trees within 200 feet of the blinds. The greatest difficulty with the blinds is that the blinds are too cold to sit in all day. About 6 to 8 hours is as long as a person can stand it on an ordinary day. On colder days (below zero), when there are more eagles present in the area, about 4 hours is as long as a person can sit still.

On several occasions the author and members of his crew camped out to watch the eagles in the morning. Tents, a cave, and a shelter were utilized for this purpose. The tent was used beside the fishing holes while the cave and shelter were on top of the bluffs. The birds seemed to pay no attention to the tent near their feeding grounds. Eagles were observed sitting in trees within 60 feet of the tent many times. They were using the trees for observation posts for fishing. It was through a combination of these three methods of observing the eagles that much of the information for the rest of this paper was obtained. Because the author could not be in two places at once, complete counts were not made on days when the author used the blinds or camped out. This, poor road conditions, and time spent designing traps accounts for most of the days which are not listed on the graph.

The several methods of observing the eagles were utilized to determine their habits. The best way to explain these habits may be to spend a typical winter day with the birds. As soon as daylight begins to lighten the sky in the east, the eagles become active. If they had been disturbed at the roost the night before and had to find a new roost, they may come back to the roost at this time. Even if they return to the roost at this time, they do not stay long as they soon fly out to the nearest fishing hole. If for some reason the birds are wary of that fishing hole, they may fly on to the next. The time of this arrival at the fishing holes is about 7:30 during the last of December and gradually changes with the sun until it is about 6:30 during the last of February.

The birds announce their presence at the roosts and the fishing holes by calling to each other as they arrive. The most calling by the birds was observed by the author at this time of day. The purpose of the calling is not definitely known. The call itself is not an alarm call. It seems to be the same type of a call that the eagles give while fishing during the other parts of the day. An eagle that has made a couple of unsuccessful passes at fish in the open water may give this same type of

call as it lands in a tree to look for another fish.

Even though the eagles arrive at the fishing holes just as it starts to get light, the majority of birds do not start fishing until about one-half hour later. Fishing seems to reach a peak between 8:00 and 10:00 A.M. However, on some days there is still considerable activity at the fishing holes from 12:30 to 2:00 P.M. Usually by 2:00 P.M. the eagles have all fed and they start returning to the roosts for the night.

There are several different techniques used by the eagles when fishing and eating. The first is sitting in a tree and watching for the fish swimming in the open water and then flying down to capture it. The second is by flying over the open water looking for the fish in the water below. This is used most often in large pools when there are no trees nearby. The third technique is used when there is a large concentration of eagles so that the number of available fish per eagle is low. At such times the eagles may land on the edge of the ice to catch fish that have washed up against the ice edge. Occasionally, if fresh fish are not available the birds seem to feed on fish that are frozen into the edge of the ice.

It is believed by the author that the eagles, especially when remaining in the area for some time, acquire favorite fishing perches. Many of these perches are trees beside or over the open fishing holes. The eagles use these perches at least three-fourths of the time during the day. From observations made by the author on individual birds, the birds using this technique are flying about 10 minutes all morning in 4½ hours. During that time they may catch two or three fish.

The birds are successful in catching only about half of the time. If the eagle was successful in catching a fish it will usually fly up to a tree to eat the fish. This tree may be the same one it just left or it may be another. Some eagles tend to go back to the same tree much more than other birds. It is assumed that such birds with an attachment to a certain tree are birds that have remained in the area for some time. The reason for this belief is that a certain tree or limb may be occupied by an eagle every day for several weeks. If the nearest trees are some distance from the open water, the eagles drop to the ice to eat the fish. Occasionally, eagles have been observed fishing over open water and catching very small fish. When this happens the bird will sometimes feed on the wing in the same manner as the Mississippi Kite. The foot is brought forward, the fish is snatched from the foot by the beak, and the fish is swallowed whole.

There has been some discussion between the author and other persons working with the eagles about the formation of pellets. If the eagles swallow the fish whole, then there should be regurgitated pellets either under the roosts or beneath the feeding trees. These pellets would contain the bones of their prey as with hawks and owls. If the birds pick the meat off the fish then the skeleton of the fish should be under the roost or feeding trees. However, the author has spent many hours searching these roosts and feeding areas both for pellets and skeletons and has not been able to find a single specimen of either. This may be a clue to the possible fact that a certain eagle does not remain in the area for a very great length of time. There is also the possibility that the birds remove the pellets during flight. There is also the possibility that the bones are digested, thus not forming pellets.

Attempts were made to find eagles in areas other than in the study area along the river. Only on a couple of days did the author observe eagles away from the river. Once was on January 26th when a bird was observed flying north up Rattlesnake Creek about 6 miles northeast of Cass-

ville. An attempt was made to follow the bird but because of the winding side roads, the bird was lost from sight in about 5 minutes. The other day was March 13th when a bird was sighted sitting in a corn field about 4 miles northwest of Platteville. This bird was also trailed cross country to be lost in about 5 minutes. On the same day an immature was sighted soaring about one mile east of Rockville. Neither of the last two birds seemed to be migrating. They seemed to be hunting but because of the author's inability to follow them this is not verified. The author received information about eagles out in farmers' fields eating dead pigs and chickens during the past two winters. However, this year he received none at all. Part of the reason for this may be the fact that the author spent most of his time observing the birds on the river.

Because of this the only information the author has on the feeding of the birds is what he has gained on the river. That is that the eagles eat fish they get from the open water. Whether or not these fish are injured or sick is not known. It is assumed that many of the floating fish in the holes below the power plants were injured by the power plants. There is a good possibility that these fish were weak or sick or they would not have been washed into the power plant screens. This sickness or weakness, if present, may be the result of a disease or poisoning of some sort. Specimens of four species of fish were collected at the lower power plant on February 4th to be checked for insecticides as they may be a possible source of poisoning. The results of this investigation will be announced after the needed money is located to check them.

As mentioned before, the eagles usually start to go to their roosts about 2:00 P.M. On some days the eagles may be back at the roosts by 11 A.M. Going to the roost at this time is usually the result of easy fishing in the morning or the approach of inclement weather in the afternoon or evening. If inclement weather is present the birds may stay in the roosts all day unless disturbed. By inclement weather is meant either a storm or just high winds with cold temperature. Cold temperatures alone do not seem to bother the birds but if there is a high wind then the birds stay on the leeward side of a bluff or hill to conserve their energy.

The author knows the locations of five roosts on the Wisconsin side of the river and on the islands. However, he is certain that there are undiscovered roosts on the Iowa side of the river. At the approach of inclement weather, the eagles seem to disappear from the feeding areas. Depending on the direction of the wind, a check of the known roosting areas may reveal the location of the birds. As many as 20 birds have been observed at a single roost. The direction of the wind and the intensity or ferocity of the storm seems to be the determining factor as to which roost the eagles will use. However, a total count of the known roosts has never completely accounted for the birds present in the study area during the day. There have been certain evenings when the presence of eagles could not be determined at any of the known roosts. This and the observation of eagles flying across the river in the evening has led to the assumption by the author that there is a roost on the Iowa side of the river near Buena Vista, Iowa, just south of Cassville.

Starting during the end of January and with increasing frequency during February, the eagles may be seen flying gymnastics or putting on aerial displays during late morning and all afternoon. Two to 15 eagles have been seen participating in these displays. The birds fly, soar, and chase each other around the sky. The birds may use an area of about 5 square miles for these displays. Much of the time is spent in chases. One bird chases and seems to dive almost onto the back of the other. The other bird will tip over in a complete side roll as the first bird comes close.

The author has never been able to observe physical contact between the two birds. However, the lower bird usually extends its talons to such an extent that the birds could grasp talons if they so desired.

These displays are very common during the latter part of February and during the northward migration. If the birds are not flying north with all possible haste and if there are several birds in a group, it seems as if the eagles chase and play all the time. Even though, occasionally, the chases are in a southerly direction, the birds seem to keep up with the other birds that are flying straight north. Occasionally the author has been able to check the speed of the eagles during a chase. At such times the birds may fly at least 65 to 70 miles per hour. An accurate check of the speed cannot be made because the birds are weaving and zigzagging across the sky. (An eagle was clocked at 65 m.p.h. upon initial chase by a helicopter in Feb., 1962. ed.)

These displays are participated in by adults and immatures alike. In fact, the numbers of chases which the author observed in which both members were adults is very few. The greatest number of aerial displays are put on by an immature and an adult. Occasionally a chase will be made by one adult after another but this is fairly uncommon. It is believed by the author that these aerial displays are attempts by the single birds to find mates. An interesting observation is that the birds may come back and sit in the same tree after a chase. Also this is the closest to courtship behavior that the author has observed on the part of the eagles. The author has never observed one eagle catching a fish for another nor two eagles sharing a fish. Other than two birds sitting on the same limb, which is quite common in February, the author has observed no indication of courtship except for the aerial displays.

As during the previous year, the author attempted to bait and trap the birds to color-mark them so movements of individuals could be observed. A total of 50 to 60 bushels of dead fish (shad, carp, and crappies) were placed near the feeding holes, either on the ice or on the sand bar near the open water. One eagle came down to one of the three spots just once all winter. Floating fish were tied out in the open water but were undisturbed by the eagles. Besides fish, a total of 7 car-killed deer were placed at three locations in the hope of attracting the eagles to the ground. As with the fish only one bird came down all winter. The author also used all the car-killed rabbits and squirrels he found during the winter with equally poor success. It is believed that the deer would have worked if a few kills would be placed out at least every other week. This year there were five in one week and then five weeks without any.

The only animals that benefited by the bait placed out by the author were the Crows, foxes, and opossums. The Crows were able to survive the winter with very little effort on their part. As many as 30 to 40 birds were observed feeding on the dead deer and fish at one time. The eagles would sit in the trees around the bait and watch the Crows but they would never go down to feed themselves.

The most interesting observation at one of the baiting areas was not observed first hand by the author. At the time when the eagle's tracks were discovered by one of the deer carcasses, there were also fox tracks near the deer. One set of fox tracks made a very peculiar pattern. The tracks showed the fox running away from the deer carcass and then doubling back at an angle of about 45 degrees. Upon closer observation the cause for the strange pattern was determined. The fox had had a little disagreement with an eagle. About 4 to 6 feet away from each point at which the fox would double back there could be seen the impression of the eagles' wing tips in the snow. One wing was on each side of the fox's tracks.

One night in January, 6 to 8 foot poles were placed on the sand bar near the deer carcasses and the large pile of dead fish. It was hoped that the eagles might use these poles for perches near the bait. The poles were used by Crows and hawks but not eagles. If the eagles had used the poles for perches traps would have been placed on top of the poles.

Because the eagles did not respond to the bait placed out for them very little time was spent designing traps. One trap was developed which could be placed on the deer carcass or dead fish if the eagles started to come to the bait. This trap is just an enlarged jaw trap with a number 1½ spring and padded jaws. With a little more designing and building this trap could be used to catch eagles to the exclusion of hawks, Crows, and other small birds or animals. At the present time the author is attempting to design and build a large Verbaill pole trap. He is using a Verbaill trap which was loaned to him by the Animal Trap Company of America, Lititz, Penn.

Some time was spent attempting to use floating fish traps. Some of these were the same traps which had been used last year. They had been developed by Fred Robards, Juneau, Alaska. Another floating fish trap was designed by the author which looks much better than the Robard trap when it is floating in the water. The main question about whether or not it will hold a Bald Eagle is still unanswered as the eagles did not strike any of the floating fish whether they had a trap attached or not.

There would be a much better chance for the trapping techniques or methods to work during November and December as the birds are moving into the area and are not familiar with the locations of good feeding areas. Also at this time the birds would be much less suspicious about bait that has been placed out for them. Part of the reason for poor trapping success is that the author was unable to attempt any trapping methods until the middle of January. He attempted to get money from several sources during the last of November but was unsuccessful. It was not until after he had a source for the funds that he was able to attempt to trap the birds.

What is the future of the eagle study at Cassville? This is a question that only public opinion can answer. If more persons become concerned about the future of the Bald Eagles, funds could be made available to conduct the necessary studies of the birds to include their wintering habits as well as nesting success. Cassville is one of the most important areas from which wintering studies of Bald Eagles should be conducted. The reason for this is the fact that Cassville is the northernmost wintering area on the Mississippi River. Also it seems to be in the major migration route, both spring and fall, of the eagles nesting in areas farther north.

Information which is still needed is: **the location of roosts on the Iowa side of the river**; knowledge about which roosts are used and why they are used under certain weather conditions; migrations of eagles during early and late winter and the cause for the change in the population from day to day. A helicopter would be able to be used to great advantage to help obtain this last piece of information and to determine the route of the migration.

SUMMARY

This study was a continuation of a study being conducted by the author of the Bald Eagles wintering at Cassville, Wisconsin. A total of five roosts have been located. Early and late winter migrations of eagles have been observed with up to at least 180 birds seen on the best day, February 20th. The highest number of birds seen perched and feeding in the study area during one day was 153 on December 19th. Attempts were made to bait

the eagles. Two new traps were developed but have not had a chance to be tested very thoroughly. At least 10 specimens each of four species of fish have been collected to be tested for insecticides. The results of this part of the study are delayed until the funds needed for the investigations have been located. The last portion of the paper is devoted to the possible future of the study of the wintering eagles at Cassville. What is needed is public opinion being aroused to the extent that more money will be delegated for this work, not only at Cassville, but at many related areas.

The author and the club would like to thank everyone who, through his generous contributions, made this study possible. The author would like to personally thank the Southwestern Wisconsin Audubon Club for undertaking the project. A special thanks must be given to Mrs. Lloyd Grimes for her many hours spent in mailing letters and keeping records of the finances for the project. The author would also like to thank Mr. William Bair, Refuge Manager for the Upper Mississippi Wildlife Refuge at Cassville, and Al Kowalac, Grant County Game Warden at Lancaster, for their invaluable assistance in the field. Mr. Bair granted permission to conduct the study on the refuge, and furnished information on the concentrations of eagles as observed in his river bird counts. Mr. Kowalac brought all of the available car-killed and illegally shot deer in Grant County to the study area to be used for bait. The author would also like to thank the following persons, most of whom are students at the Wisconsin State University at Platteville, for their most generous and willing assistance with the field work: Betty, Marie and Al Brawner, Dale Carlson, Maida Hay, Rick Ritter, and Robert Sedgwick. Without their help much of the field work would have been impossible.

The author would also like to thank Maida Hay for the many hours she spent trying to decipher the author's handwriting and typing the manuscript for this paper. Without her many hours donated to the study, this report would have been delayed several months. The author would also like to give his heartfelt thanks to everyone who helped in one way or another to the study. He hopes that this nucleus of interested persons will grow in number so that our national symbol will remain forever with us.

A STUDY IN THE USE OF BRIDGES AND CULVERTS BY NESTING IOWA BIRDS

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Several species of birds, especially the Eastern Phoebe and Cliff Swallow, are known to use bridges as nesting sites. While wondering what species used these bridges and to what extent they were used in this area we came upon the idea for this study, hoping also to find out what types of bridges were most used by certain birds and why. Thus, we decided to check all the bridges in our area and find out how they were used. We also decided to check to see if the other man-made structure used for crossing water, the culvert, was used by nesting birds.

Upon studying a map of Greene County, we saw that there were far too many structures to cover them all. Thus we narrowed the area to all of Bristol, Hardin, Jackson, and Grant Townships, the western part of Junction Township, the northern part of Greenbriar Township, and the parts of Scranton and Willow Townships in the Dunbar Slough area. These areas were picked, generally, because they were centrally located in the county, and because they had an abundance of creeks and a large section of the Raccoon River. Excluding the Dunbar Slough area, the land covered formed a square with the Raccoon River cutting across it diagonally. The land along the Raccoon River is very rolling, with many large bluffs, almost all of this land being heavily or partially wooded. The other areas, away from the river, are very flat farm lands. Here there are very few trees, leaving most of the bridges in open areas. We found a few structures that were in areas that couldn't be called open, yet couldn't be called wooded. Thus, we will refer to these as "mixed" areas. They were areas where, perhaps, one side of the bridge had many trees while the other side had none, or the one end of the culvert faced trees while the other end faced a corn field.

In this study we covered a total of 67 structures, 53 bridges and 14 culverts, of various types. If a bridge is basically concrete, with the underside of it being concrete, it is referred to as a concrete bridge. If the underside where the nests are is iron, it is classified as an iron bridge, even though the rest of it may be concrete. If the nesting area of a bridge is wood then the bridge is classified as a wooden bridge. There also were 3 types of culverts. The iron culvert was one that is semi-circular and made out of metal. We found two of these, but this type isn't included in the charts because it is unsuitable for any nests. The other two, the concrete culvert and the wooden culvert, describe themselves.

In our study we found 146 nests belonging to 6 species. For each nest we checked the type of bridge, its surrounding environment, its height, whether it was over water or ground, and how many nests of the same kind were in that structure. We will cover each species separately and tell what we found.

CLIFF SWALLOW

The Cliff Swallow was the most common nester on the structures that we covered with a total of 44 nests. Their gourd-shaped nests were almost always attached to the concrete side of a structure in a corner with just an inch or two between the nest and the underside of the structure. Generally, each nest was built individually and was not connected to any others. Yet, there were a few cases of duplex houses, where two nests were built together. Apparently in these cases the two houses were built at the same time and with the intention of having them connected. While the entrance tunnel in a single nest pointed straight out from the nest, those in the duplexes were curved out somewhat, and pointed away from each other. Of the 44, 41 of these were built on concrete structures, probably because the mud sticks to concrete better than it does to iron. One iron bridge did have 3 nests, which were built on a steel I-beam. Two of these nests were built like the normal Cliff Swallow nest, but the third was quite different and quite ingenious. This nest was built near the upper corner of the beam, as the other nests, but instead of trusting that the nest would stick to the metal, these birds added a mud support all the way from the bottom of the beam. This made a nest a foot high and containing as much mud as two or three normal nests.

The Cliff Swallows were unanimous in the picking of surrounding environment. All of the nests were found in open (and usually very open)

areas. They also seemed to like to have their nests placed over water, as 42 of them were. Only two nests were found placed over ground, and both of these were quite high. Before doing this study we had wondered about the coloniality of nesting Cliff Swallows and this answered a few of our own questions. Of the 13 structures containing Cliff Swallow nests, 4 of them contained solitary nests while the other nine contained what would be called colonies. The largest colony that we found was one which contained 11 nests on one structure. In making this study we were interested in the Cliff Swallow, as we wondered about its population in this area, and its nesting preferences. We were surprised with the numbers of this bird that we found and we found some good nesting information.

HOUSE SPARROW

The House Sparrow was the second greatest user of bridges and culverts with 40 nests. All of the information we compiled proved that the House Sparrow nests most anywhere and is a great improviser for nest positions. The old iron bridge was the most used structure because of its many ledges, nooks, and crannies.

Fewer nests were found in the concrete structures because of the fewer available nesting sites. The House Sparrow also liked what few wooden structures we found. These birds didn't seem to mind what kind of neighborhood they were in, either, as there was only a 4 nest difference between the most and least used areas. The figures on whether the nests were situated over water or land were more a matter of circumstance than of the birds preference, and it is our belief that a majority of the nests were situated above the water only because a majority of the sites were over water. The last group of figures also showed the House Sparrow to be easily pleased, as it nested both colonially and solitarily. One "colony" had 8 active nests. Our study of this bird taught us relatively nothing, and a study of much larger stature would be needed to find any definite trends in House Sparrow nesting preferences.

BARN SWALLOW

The Barn Swallow, which I previously believed nested almost exclusively in barns, was the third largest user of bridges and culverts, and some good comparisons can be made between it and its relative the Cliff Swallow. Barn Swallows preferred concrete structures, probably for the same reasons as Cliff Swallows, with 22 of the 28 nests on these structures. Yet, the Barn Swallow often used the small concrete culverts, (8 nests), while the Cliff Swallow used these only once. The Barn Swallow also used iron bridges more readily, with five nests, all of which just sat on the horizontal part of the I-beams. In surrounding environment, the Barn Swallow, like the Cliff Swallow, preferred wide open areas. Yet, 5 nests were found in areas of mixed surroundings and 2 nests were found in definitely wooded areas. The Barn Swallow also followed the Cliff Swallow's preference for nest's positioned over water, but once again, the former species wasn't as choosy as the latter. Twenty-three of the nests were situated over water, but only 5 nests over land. The biggest difference between the two species was the number of nests per structure. Of the 21 structures with Barn Swallow's nest, 16 of them contained one solitary nest. There were 4 structures with 2 nests, but in all of these cases the nests were situated apart, often at opposite ends of the bridge or culvert. Yet, one bridge questioned our conclusion that Barn Swallows were solitary nesters. This bridge had 4 nests, two of which were within a foot of each other, with the other two nearby. If it weren't for this one case of Barn Swallow nesting in apparent colonial form, we could easily say that they were solitary nesters. We were quite interested with the

figures on this bird, as we didn't realize that they used these structures to this extent.

ROCK DOVE

Another bird that used bridges and culverts as nesting sites was the Rock Dove. We found a total of 17 nests of this introduced species. Two basic nesting sites were used by this bird. The first areas were the ledges formed in the corners of some iron and wooden structures where vertical and horizontal sections met. The second areas were the flat, open areas of concrete supports found under some older concrete bridges. This bird seemed to prefer open areas, as over half the nests were found there. Most of the nests were found over land, once again because most of their favorite nesting sites were over land. This bird seemed to prefer solitary nesting, as most of the structures had only one nest, and, if 2 or more nests were found, they were never very close. On this bird, as on the House Sparrow, a greater study would have to be made to determine any definite trends.

EASTERN PHOEBE

The Eastern Phoebe is about the only bird that has adapted itself to using man-made bridges and culverts almost exclusively as nesting sites. This bird is fairly common in this area, and although our area contained only 12 nests of this species, several trends were predominant. This bird preferred to place its moss-lined nest on some flat surface, such as an I-beam. This made most iron bridges suitable, and 8 of the nests were on iron bridges. Yet, we found several nests that were hooked onto the side of a concrete structure in Barn Swallow fashion. One of these was on a small concrete bridge and the other two were in small concrete culverts. This bird preferred wooded areas, with 9 nests in these, but also used areas of mixed surroundings. One nest was found under a large bridge in an open area and was the only exception. The Phoebe didn't seem to mind whether its nest was over water or land, but it was definitely a solitary nester. Of the 12 structures that contained active Phoebe nests all contained but one nest. (In a few bridges we found additional inactive nests.) Thus, although we had a small amount of information we can form some sound conclusions.

ROBIN

The sixth, and last, species which we found using bridges and culverts for nesting sites was the Robin. We found 5 nests of this bird, and with this meager information, can't form too many conclusions. Four of the nests were placed on beams of iron bridges, while the last nest was on a concrete ledge. The information on surrounding and position showed no trends, but the last figure did. All 5 of the nests were alone, with no other active nests near by. We were a bit surprised to find this bird using these structures, as there seems to be an abundance of good wooded areas around.

Just the material that we collected this summer had some surprises for us. We didn't realize that the Cliff Swallows were as common as we found them to be. Nor did we realize the extent which Barn Swallows used these structures as nesting sites. As we learned each bird's preferences for nesting sites, we became quite adept at predicting what a bridge might hold. Each bridge was completely different from all others in some way, but enough of them were alike to be able to form conclusions. The smaller bridges were used most, especially if they were on untraveled roads. We found that on the highways apparently suitable nesting sites would be unused or not used to capacity. We also found that most of the large bridges over the Raccoon River weren't used as much as smaller bridges of similar structure.

We plan on continuing our study, and we are going to add to it. This fall, we are going to go around and mark some of the nests. By doing this we hope to see if the birds (especially Cliff Swallows) use their nests over again. We also wondered what effect winter has on these well-built structures. We plan on covering the same bridges next summer and hope to see the following:

1. Any changes in total populations.
2. If there is a great alteration in the sizes of colonies. (Cliff Swallows)
3. If the trends which we uncovered this year remain.
4. If any new trends appear.

Although this is now a rather elementary study, over a period of years it may provide a large amount of scientific information. The study would be more interesting and more scientific if we were banders, as then we could check to see if the same birds returned to the bridges where they nested previously or where they were born.

Table 1 — Data obtained and recorded in our study.

	Cliff Swallow	Eastern Phoebe	Robin	House Sparrow	Barn Swallow	Rock Dove
A. Type of Structure						
Iron Bridge	3- 7%	8-67%	4-80%	20-73%	5-18%	9-53%
Concrete Bridge	40- 91%	2-17%	1-20%	7-18%	14-50%	4-23%
Wooden Bridge				2- 5%		2-12%
Concrete Culvert	1- 2%	2-17%		1- 3%	8-29%	
Wooden Culvert				1- 3%	1- 4%	2-12%
B. Surrounding Environment						
Open Fields	44-100%	1- 8%	2-40%	15-38%	21-75%	9-53%
Wooded Areas		9-75%	1-20%	11-28%	2- 7%	4-23%
"Mixed" Areas		2-17%	2-40%	14-34%	5-18%	4-23%
C. Nest Placement						
Over Water	42- 95%	7-58%	2-40%	28-70%	23-82%	5-30%
Over Land	2- 5%	5-42%	3-60%	12-30%	5-18%	12-70%
D. Number of nests per Structure						
1 per structure	4	12	5	5	16	8
2 per structure	3			3	4	3
3 per structure	2			1		1
4-6 per structure	2			4	1	
7-10 per structure	1			1		
11 per structure	1					
TOTALS	44	12	5	40	28	17
Total of 146 nests						

REPORT OF THE FALL MEETING SEPTEMBER, 18-19, 1965

DR. MYRLE M. BURK, SECRETARY-TREASURER

R.R. #2
WATERLOO, IOWA

The weather pattern for the week end of May 18 and 19 was not favorable to birdwatching. Fog, mist, and rain prevailed with a brief break of sunshine Saturday afternoon, accompanied by high humidity and a temperature of 80° F. The promise of fair weather Sunday morning was brief; rain began to fall early and continued throughout the day. Yet a large group of members and friends of the Iowa Ornithologists' Union migrated to Des Moines for the annual fall meeting. For all it was an interesting and delightful get-together and with rewarding field trips. For this excellent meeting we extend our appreciation to the members of the Des Moines Audubon Club for the gracious courtesies and entertainment planned for our pleasure and convenience. A unit of the McNeal Motel was reserved for our lodging, contributing to the ease of visiting. Bishop's excellent cafeteria was nearby in Merle Hay Shopping Center, a pleasing

reception was given Saturday evening, and the beauty of Lewis A. Jester County Park, even as seen in the rain, will be remembered. We again thank Mrs. Russel Nicholson, President, Mrs. C. D. Waller, Local Chairman, Woodward Brown for the selection of Jester Park, those who planned the reception, those who early Sunday morning prepared the appetizing breakfast, those who led the field trips: in short, the membership of the Des Moines Audubon Society.

Saturday evening, in the meeting room of the Motel, the members of the Des Moines Audubon Club graciously welcomed the bird watchers, serving a variety of delicious cookies and punch. Mrs. Russell Nicholson, President, welcomed the Union members; Dr. Robert Vane, President of I.O.U., responded. He reviewed the history of the fall meetings, relating that in 1949 Mr. and Mrs. Fred Pierce invited members to their home in Winthrop for a potluck picnic dinner, for visiting, and for birding. A year later the invitation was again extended; more members participated. As interest in the fall meeting grew the Pierce home became inadequate to entertain the group and the meeting was held at Ledges State Park. Since then the meetings have been held in various places throughout Iowa. This year, due to the interest of Woodward H. Brown, the meeting was in Des Moines.

The meeting was then turned over to Mrs. Darrell Hanna, Vice-president and Program Chairman, who introduced the "assistant vice-president", Mrs. Helen Barrett, the "stuffer of envelopes". Mrs. Hanna then presented Mr. and Mrs. Harold V. Whitmus, Lincoln, Nebraska, who by combining their two hobbies, bird watching and photography, have assembled a set of unusual slides of birds, called "Bird Adventures". Many of these photographs were made during their annual vacation trips in the autumn when the colors are so brilliant. They were snapped from North Dakota south and east to Florida; at home in Nebraska were Yellow-crowned Night Heron, White-fronted Geese, Sandhill Crane, phalaropes, Bobolink, and Lark Bunting; in Missouri a flight of 150,000 Blackbirds; in Florida Anhinga, Wood Ibis, Vultures, Everglade Kite and Belted Kingfisher; in Louisiana Common Egret, Louisiana Heron, White-faced Glossy Ibis, Fulvous Tree Duck, and Black Skimmer; in Texas, Chachalaca, Laughing Gull, Roadrunners, Kiskadee Flycatcher, Vermilion Flycatcher; and in Kansas, Scissor-tailed Flycatcher. Our sincerest thanks to Mr. and Mrs. Whitmus, who added so much to our program in showing the many excellent pictures.

Sunday morning at seven o'clock the members met at the "Barn", near the entrance to Jester Park for the tasty breakfast of scrambled eggs, sausages, rolls, and plenty of hot coffee, prepared by the "Breakfast Committee" who arrived at the "Barn" at five o'clock, bringing equipment and food with them. Many thanks to them for serving a satisfying breakfast as a prelude to the field trips.

Assembling with the field trip leaders, the exploration of Jester Park was either on foot or in cars. The park consists of 842 acres, bordered on the east by the Des Moines River and having various habitats from open fields to timber, ponds and gullies, flat land and rolling areas. Aside from bird watching the plant life was observed; especially interesting was the variation in the oaks. Snails and mushrooms and the colorful asters were most attractive. Those interested in meteorology were furnished rain in varying intensities during the morning. Good fellowship and learning were prevalent. At noon we returned to the "Barn" for a hearty dinner.

The compilation of the birds observed during the morning was led by Charles C. Ayres. Seventy-five species were noted.

Pied-billed Grebe, Great Blue Heron, Pintail, Blue-winged Teal, Turkey Vulture, Cooper's Hawk, Red-tailed Hawk, Marsh Hawk, Osprey, Sparrow

Hawk, Bob White, Spotted Sandpiper, Solitary Sandpiper, Black Tern, Mourning Dove, Yellow-billed Cuckoo, Black-billed Cuckoo, Great Horned Owl, Barred Owl, Nighthawk, Chimney Swift, Ruby-throated Hummingbird, Belted Kingfisher, Yellow-shafted Flicker, Red-bellied Woodpecker, Red-headed Woodpecker, Hairy Woodpecker, Downy Woodpecker, Eastern Kingbird, Eastern Phoebe, Wood Pewee, Olive-sided Flycatcher, Tree Swallow, Barn Swallow, Purple Martin, Blue Jay, Common Crow, Black-capped Chickadee, Tufted Titmouse, White-breasted Nuthatch, Red-breasted Nuthatch, House Wren, Short-billed Marsh Wren, Catbird, Brown Thrasher, Robin, Eastern Bluebird, Ruby-crowned Kinglet, Cedar Waxwing, Starling, Red-eyed Vireo, Warbling Vireo, Black-and-white Warbler, Black-throated Green Warbler, Chestnut-sided Warbler, Yellowthroat, House Sparrow, Bobolink, Eastern Meadowlark, Western Meadowlark, Red-winged Blackbird, Baltimore Oriole, Common Grackle, Brown-headed Cowbird, Scarlet Tanager, Cardinal, Rose-breasted Grosbeak, Indigo Bunting, American Goldfinch, Rufous-sided Towhee, Savannah Sparrow, Vesper Sparrow, Clay-colored Sparrow, Field Sparrow, Song Sparrow.

ATTENDANCE

AKRON:—Mr. and Mrs. Eldon J. Bryant

AMES:—Mrs. Don Grabe, Marjory A. Kline

BURLINGTON:—Mr. and Mrs. Lowell L. Fuller, Peter Lowther

CARLISLE:—Mrs. G. Adolph Johnson

CEDAR FALLS:—Mrs. Chas. A. Schwanke, Maxine Schwanke

CEDAR RAPIDS:—Eleanore Fullerton, Lillian Serbousek, Dr. and Mrs. Robert Vane, Myra Willis

DAVENPORT:—Mr. and Mrs. Peter C. Petersen, Jr.

DES MOINES:—Mrs. Stanley Atherton, Mr. and Mrs. Albert C. Berkowitz, Mrs. A. J. Binsfeld, William Boller, Mr. and Mrs. Dwight Brooke, Mr. and Mrs. Joseph K. Brown, Mr. and Mrs. Willard J. Brown, Mr. and Mrs. Woodward H. Brown, Ruth Chapman, Ruth Dallinger, Mrs. Lydia R. Donai, Mrs. James A. Downing, Mrs. Esther Dungan, Miriam Dungan, Mrs. Frank Eyerly, Mr. and Mrs. Hans Glissman, Mr. and Mrs. E. M. Griffith, Mr. and Mrs. Jan Grossman, Mr. and Mrs. Lester Haskell, Mr. and Mrs. Henry J. Kroeger, Mrs. J. M. Lynch, Mr. and Mrs. Russell McBride, Mr. and Mrs. Richard D. Mooney, Mr. and Mrs. Russel Nicholson, Mary Elizabeth Peck, Mrs. Plona Pettit, Mrs. Martha Sievers, Irene Smith, Mrs. Carroll Waller, Mary Ellen Wartens, Marietta Venz

FORT DODGE:—Susan Hartwell

GILMORE CITY:—Mr. and Mrs. Sewell Van Alstine

IOWA CITY:—Mrs. Marguerite M. Laude

LAMONI:—Mr. and Mrs. J. Donald Gillaspey, Jimmy, Billy, David and Diana Gillaspey, Mr. and Mrs. Ralph Silver, Michael Silver

MADRID:—Mr. and Mrs. L. M. Lanning, Mr. and Mrs. Wayne F. Partridge

MARION:—Mrs. Lucille Liljedahl

MARSHALLTOWN:—Wayne H. Britten, Mrs. L. R. Grimes, Mr. and Mrs. Homer Rinchart

OGDEN:—Mr. and Mrs. Jim Keenan

OSKALOOSA:—Mr. and Mrs. Keith Layton

OTTUMWA:—Mr. and Mrs. Charles C. Ayres, Pearle Walker

FLEASANTVILLE:—Mrs. Gladys Black, Janice Dyer, Mrs. C. C. Jones

SIOUX CITY:—Mrs. Helen G. Barrett, Mr. and Mrs. P. B. Davison, Mr. and Mrs. Darrell M. Hanna, Robert L. Nickolson, Mr. and Mrs. Garland Rose

WATERLOO:—Dr. Myrle M. Burk

WEBSTER CITY:—Ron Muilenburg

WHEATLAND:—C. Esther Copp

WOODWARD:—Richard A. Guthrie

ELK RIVER, MINN.:—Mr. and Mrs. C. E. Munro

LA MOILLE, MINN.:—Pauline Wershofen

LINCOLN, NEBR.:—Mr. and Mrs. Harold V. Whitmus

OBITUARY

Dr. Peter P. Laude

For the third time within one year a former president of the union passed away. Dr. Laude died on May 8, 1965, at Iowa City. He also served the society as an executive council member and vice-president over the years. Born in Monticello on August 19, 1887, he attended Greenfield High School, Parsons College and the University of Iowa. He married Marguerite Roberts Laude on June 14, 1918. He served on the faculty of the College of Dentistry at the University of Iowa from 1931-1955, after practicing dentistry for twelve years in Des Moines. In addition to his work and bird watching he found time to be active in many dental societies, the American Legion, Lions Club, Masonic Lodge and the Presbyterian Church. He is survived by his wife.

In the death of Dr. Peter Laude Iowa ornithologists have lost another of their most devoted and friendly members and past presidents. It has been a sad thing, in a little over a year, to lose three of my most intimate and close companions with whom I went so often afield—Tom Morrissey, Harold Ennis and Pete Laude. I can only feel very fortunate to have had such wonderful friends, and the recollections of so many rich experiences with them. With all of these men I had that kind of relationship and mutual understanding that is hard to put into words, especially with Dr. Laude who was my most constant companion for many years. I also knew him well in his work in the S.U.I. College of Dentistry where he was one of the most devoted and sympathetic teachers on the staff. Many were the times when he went over to the "Lab" after hours to help out a student who was in difficulty or a bit behind, and returning graduates always looked him up or asked about his welfare.

For ten years he was my constant companion on bird trips and in recent years that was at least once a week throughout the whole year. We developed a plan to do our own "backyard" very thoroughly, not just in the spring or on the Christmas Count, and found it most rewarding. Even week-end trips can miss some migrants so we often went out in midweek. Pete was a wonderful partner and a keen observer, and we made a good team since my ability to hear the high frequency bird songs was complemented by his keen sight. I recall one Christmas Count when we went to a patch of woods to locate a Horned Owl usually found there. We were without success, until on the way back along the river Pete suddenly spotted it high up in a big basswood tree way across the river at such a difficult angle that the rest of us had to look over his shoulder to see it—a fine bit of spotting on his part. Another time he rushed home from a field trip to call me and report some Whimbrels on the other side of the Coralville Reservoir. We went back to photograph them at long range. I was amazed that he could have spotted them from such a great distance. So I feel very fortunate to have had such a kindly and sincere a man as friend and companion. F. W. KENT

FIELD REPORTS

Due to the late closing date for the September issue, it is possible to include some early migration notes. These follow the report on the summer birds. As the December issue will be only the 5-year index, the notes on the later migration will be run in the March, 1966, issue together with the notes on winter birds.

May was a warm month with a slight rainfall deficiency; June, normal in both respects; July and August, cool and dry. September can be described in two words, cold and rainy.

Grebes, Cormorants. A Red-necked Grebe was seen at Union Slough on 23 June. The plumage was that of a year-old bird and incapable of breeding. (DP). A Horned Grebe at Goose Lake on 9 June was not seen later. (JF). A single Western Grebe stayed from 9 June to the 30th. (PF). Two non-breeding immature Double-crested Cormorants arrived in spring and stayed until 17 August, (PF); but about 12 breeding pairs were north of Clinton. (PP).

Hérons. Great Blues increased from 5 adults in early June to more than 300 adults and young by the first week of September, but it is not known where nesting occurred. (PF). There may have been a small heronry near Sioux City with 6-10 seen regularly, but none was at Okoboji. (DH). The usual colony of Great Blue Herons, Common Egrets and Black-crowned Night Herons across from Credit Island was apparently not interfered with by the spring flood. (PP). They were thought distinctly down, (FK); and scarce all summer at Des Moines. An adult Little Blue was seen at High Lake on 7 and 9 August. (BW). Common Egrets were more common in Worth Co. than before, (BS); 60 on 10 August and more than 200 on 9 September across from Burlington, (PL); only 1 non-breeder until 3 July when there were 27 adults and young, (PF). The only Snowy reported was seen on 27 June, (RH). Black-crowned Night Herons increased from 9 in June to more than 70 immatures and adults by the last week in August, but no nesting was observed. Some individuals had colored leg streamers. (PF). There was a large colony at Goose Lake, (JF); but few, if any were seen at Des Moines, and none was found at Blue Lake or Okoboji. (DH). Yellow-crowned observations were scattered: 3 on 27 June, (RH); 1 on 5 June between Ingham and Swan Lakes, (BW); 1 on 8 June, (JF); and 1 single on 10 May and 2 on 20 May at Flint Access near Des Moines, but no nesting was reported. There may have been some immatures among the Black-crowned at Union Slough, (PF). Small numbers of Least and American Bitterns have been seen regularly at Union Slough, (PF) but few if any were seen at Des Moines.

Geese, Ducks. A lone Canada Goose at Union Slough for four days in June may have strayed from the Ingham-High Lake area where they are being introduced. The number of duck broods increased from 75 in 1962 to 154 in 1965. Wood Ducks, Mallards and Blue-winged Teal comprised 93% of the broods, and 95% of the young in these four years, (PF). A Gadwall on 13 June was a possible nester, (JF). Better nesting conditions due to raised water levels in northwest Iowa have resulted in more Blue-winged Teal and Wood Duck. There were more Redheads than usual at Okoboji as well as 3 pairs of Ruddy which had not been seen in other years, (DH). Blue-winged in late June were unusual for the township, (GB); and there were apparently more, (FK). Wood Ducks in Polk Co. evidently had a successful nesting season. Two immature Hooded Mergansers were seen north of Des Moines on 9 June.

Hawks. Few reports of any hawks other than Sparrow Hawks, (DH). Red-tailed: are holding their own, (JK); hatch very poor, saw almost no im-

matures, (EB); very few observed, (DG); 2 pairs nested, but no young seen, (GB); few reports around Des Moines. Red-shouldered was mentioned but once; the bird seen by Mrs. Haskell just east of Jester Park after the meeting may have been either a migrant or resident. It is doubtful if the Broad-winged nested in their usual place in Des Moines. For the first time in recent years no Swaison's were seen, (DG). Not many Marsh Harks were seen this past summer, (DG); and they were scarce in Polk Co. Sparrow Hawks: opinions varied—good crop, (EB); 4 or 5 broods noted in August, (DG); the only hawk that increased considerably with 1 to each 3 miles on gravel roads, (BS); but, down, (JK); and count down, (GB).

Partridge, Bobwhite, Pheasant. Gray Partridge, which had become relatively common last year in Worth Co., were not found, (BS); a good hatch but not up to unusual number of last two years, (EB). Bobwhite: more than ever observed before, (GB). Ring-necked Pheasant: same comments as for Partridge, (EB); normal to slight increase, (PP); fair number, (GB).

Rails, Shorebirds. A King Rail seen on 5, 9, and 26 June would appear to be a nesting record, (FK). Soras and Virginia Rails common at Cardinal Marsh on 10 July, and Soras much commoner at Rice Lake, (BS). Two Common Gallinules at Goose Lake on 2 June were also seen 11 July, (JF). Killdeers: very scarce, only one nest, (EB); down in numbers, (DG); rare, (GB); and, fewer than usual around Des Moines. One American Woodcock was banded 17 July at Wildcat Den, and one other seen about a mile away, (PP). Upland Plover: two pairs summered without a nest being found, but 7 on 23 July might be indicative of a successful hatch, (JK); usually a rare nester, but at least 4 nesting pairs in the vicinity with 15 seen 15 July, (EB); 3 or 4 pairs in the area, seen or heard daily, (DG); seen in three different locations including young, (GB); widespread over the county, (JF); but, fewer than last year in Polk Co. Spotted Sandpiper: spent the summer along the creek, (JK); a young unable to fly banded 5 July near Clinton, (PP); nested on Skunk River near Ames, (Dick). Wilson's Phalarope seen 17 and 25 July acted as though nesting, (DP).

Terns, Doves, Cuckoos. A Least Tern was at Dunbar Slough 27 June, (JF). A mature Black Tern near Ames on 4 June was unusual, (Dick). Mourning Doves: plentiful, (DG); good numbers, (DH); and, a good crop, (GB). Yellow-billed Cuckoos seen throughout the summer, (JK). Almost no Yellow-billed, but Black-billed normal, (EB), Yellow-billed very scarce, Black-billed down slightly, (PP). Fewest ever this year, (GB). Yellow-billed distinctly down, (FK); and both species, especially the Black-billed, fewer in Des Moines, due perhaps to fewer worms in the trees than last year.

Owls, Goatsuckers, Swifts, Hummingbirds. There were 8 Burrowing Owls all summer at the Sioux City Airport, (DH); but last year's colony near Akron was missing this year, (EB). Whip-poor-wills; abundant in selected timber, (DG); very rare, (GB); but, heard in a new area in Des Moines. Night-hawks seen only once, (GB). Chimney Swifts: considerably fewer seen in Des Moines: small metal flues installed due to changes to gas heat are reducing the number of nesting chimneys available, (GB). Ruby-throated Hummingbirds: no lack of unanimity here: appear down, (Dick); none all summer, and only 1 seen by Wm. Youngworth, (DH); only 1 pair seen in the township, (GB); none seen from May until late August, and a gardener for the Des Moines Park Dept. saw none all summer, (WHB).

Woodpeckers. Yellow-shafted Flickers: up from 1964, (GB); twice as many road-killed as Red-headed, (BS). Pileated could not be found at last year's nest site near Osage, (BS). Red-bellied, a marked increase, (FK). Red-headed: definitely increasing, (DG); felt by many to be up, (DH); up, (GB);

common on Polk Co. side roads with many immatures seen in early fall. Downy, down, (GB).

Flycatchers, Swallows. E. Kingbird: large numbers, (DH); good population, (GB). W. Kingbird, fewer reports, (DH). Great Crested Flycatchers, absent at Okoboji, but at Blue Lake and Sioux City where not seen before, (DH). Say's Phoebe, a successful nesting again, (EB). E. Phoebe: fewer, (DH); but, good numbers, most bridges having a pair, (GB). Traill's: nesting, appear up, (Dick); apparently more, (FK). E. Wood Pewee: Plentiful, (DH); feeding young at Jester Park on 19 September, a late date. Bank Swallows: hundreds nesting along Skunk River and Squaw Creek, (Dick); seem to be more, (DH). Rough-winged: even more than last year, (Dick); usually rare, but nested in two locations, (GB); fewer in Des Moines. Barn: nesters not too plentiful, (EB); down somewhat with many barns having none, (GB). Cliff, nested in large numbers near Sioux City, (DH).

Jays, Crows, Chickadees, Titmice, Nuthatches, Wrens. Blue Jays: more everywhere, (DH); numerous, and probably a factor in much of predation, (GB). Common Crows, few. Black-capped Chickadees, not as numerous as seven to nine years ago, and smaller percentage fledged. Tufted Titmice, down if anything. White-breasted Nuthatches, down throughout township. House Wrens: big population with many Bluebird houses taken over. Second nestings averaged 5-6 eggs, (GB). Short-billed Marsh Wrens: several have commented that these are seen in early spring and not again until late summer. Where do they nest? (Sedge meadows, ed.) Carolina Wrens: a welcome report, first found in several years, (FK).

Mimics, Thrushes, Shrikes, Starlings. Mockingbirds: Present in scattered localities during the summer, (DG), appear well established in east half of township. Observed in five locations, four nests found with three successful and one predated, (GB). Catbirds: seem to be down at Sioux City and fewer at Okoboji, (DH); good population and Brown Thrashers up (GB). Robins: all feel numbers up, (DH); good population but fewer young netted, (GB); seem up, (FK); stupendous crop—most ever seen, (EB). E. Bluebirds: unreported in Sioux City, but flock of 25 seen at Springbrook, and flock seen at Smithland by Geo. Marsh, (DH); 60 nesting boxes produced 126 young (GB); but, only 24 banded, down from the normal number of 65-70 due to high predation, (PP). Loggerhead Shrikes: very scarce, (EB); distinctly down, (FK); scarce, (PP); thought down, (WHB); but, up all over township, (GB). Starlings: continue to increase, (DH).

Vireos, Warblers. Apparently more Bell's Vireos, (FK). All vireos relatively few in Des Moines. Floods may have hindered nesting of Prothonotary Warblers, (PP). A singing Parula male was found on 27 June by Albert Berkowitz. Yellow: definitely down in Rice Lake area, (BS); still down, (PP); no Yellow or American Redstarts where there are usually a few, (GB). A pair of Kentucky and 4 male Cerulean Warblers were in the Yellow River Forest in June, (DK). Yellow-breasted Chats: seem down, (PP); 2 pairs found, but no young seen, (GB); no nests found in the usual places in Des Moines where Redstarts were very few.

Blackbirds, Tanagers. Bobolinks: up from last year, (Dick); more than before in Polk Co. Yellow-headed Blackbirds nested in almost every inlet in Rice Lake, (BS). Orchard Orioles: common and widespread, (JF); up in 1964 and again this year, (GB); but, fewer found in Des Moines. Baltimore Orioles: seen more frequently, (JK); abundant wherever suitable nesting trees, (GB); at least as plentiful in Des Moines, but thought down by many, (DH). Common Grackles: a two-or three-day old nestling found 3 July, a late date, (PL); not as numerous as eight or nine years ago, but still plentiful, (GB); formerly abundant nesters in rural areas, but numerous in city the past few

years, due possibly to more evergreens which they like, (WHB). Brown-headed Cowbirds, abundant and parasitized five Bluebird boxes, (GB). Scarlet Tanagers fewer and no nests of Summer Tanagers found for the first time in several years in Des Moines.

Finches, Sparrows. Cardinals: appear to be increasing, (DH); seem to be moving into area, (EB); numerous, but few fledglings, (GB). Rose-breasted Grosbeaks: abundant (GB); definitely not up, (EB). Blue Grosbeaks, good nesting season with four of seven nests found producing 12 young, (EB). Indigo Bunting: increasing again, (EB); seen more frequently, (DH); very common in Des Moines. Dickcissels, more of these than any other species in the township, (GB). Lark Bunting, one on 28 May was the most unusual find of the season, (DG). Henslow's Sparrows, 6 in Yellow River Forest in June, and 1 near Castalia, (DK). Chipping Sparrows: not as many noticed, (DH); good population in town, but few in rural areas, (GB). Song Sparrows, heretofore a rarity this far north and west, but noted in two places, (EB).

FALL MIGRATION

Loons, Pelicans. A Common Loon on the Impounding Reservoir on 23 September was three weeks early, (WHB). White Pelicans arrived early, 9 on 8 September, were still present on the 20th; 64 were on Lewis and Clark Lake near Council Bluffs according to Stan Hedeen, (PP); three flocks on 24 September totalled 400 birds, (DG).

Hérons. Great Blue Herons have been seen frequently at Ogden, Des Moines and Lamoni. American Bitterns were first seen when 2 appeared on 13 August. They are still being seen in small numbers on 20 September.

Geese, Ducks. A flock of 20 Canada Geese was seen on 25 September by Albert Berkowitz, and a flock of Snow and Blue by Mrs. Harold Peasley on the same date. At Credit Island there was a Common Merganser from early August to 10 September.

Hawks. Russell Hays on 26 September watched a migration of Broad-winged Hawks estimated to have been in excess of 5,000. Numerous single Red-tailed and Sharp-shinned were seen at the same time. He had earlier seen flocks of 50 and 200 Broad-winged. Swainson's were seen on 5 September, (FK) and 14 September, (JK). Ospreys were noted frequently, usually in ones and twos, but 5 were seen at Fisher's Lake near Des Moines by Dick Mooney the first of September.

Shorebirds. The first big wave was 2 July, and the peak was 3500 around 1 August. A total of 23 species was seen during the period, (PF). Migrants very scarce due to too much rain, (PP). High water in the Reservoir cut out some nesting areas, (FK). All species noticeably absent due to high water, (DH). Several small flocks of Golden Plovers were seen in late August. These were more than usual, (EB). Baird's is unusual and one on 9 August was a "first", (EB). The rare Buff-breasted was seen by Mrs. Fuller on 19 August in Illinois near L&D 18, (PL). A Marbled Godwit was present from 7 August to 7 September. Four Avocets were seen once on 26 July, (PF). Wilson's Phalaropes reached a total of 20 on 3 September, (DP).

Nighthawks, Swallows. An early migrating flock of 80 Common Nighthawks was seen 9 August, (RH); fewer seen this year than in other years, (DG); hundreds on 30 August and a smaller flock on 11 September seen by Wm. Youngworth, (DH). Bank Swallows, 300 on 5 September, (FK). Cliff Swallows, usually an August flight of 100-1000, but none this year, (DG). There were conservatively estimated to have been 1000 swallows near Blue Lake on 6 August, of which one-third were Cliff and two-thirds Bank, (DH).

Nuthatches, Wrens. Red-breasted Nuthatch reports are numerous with very early arrivals. There were 2 Winter Wrens banded on 14 September, (PP).

Thrushes, Kinglets. Veeries have been unusually plentiful with 12 banded, (PP). Ruby-crowned Kinglets: a wave on 16 August, (JK), and first seen 16 September, (PP).

Vireos, Warblers. A good vireo migration, with an early Philadelphia on 7 August, (JF). Warblers—first arrived on 24 August, a week later than last year, (DK); disappointing, only three species seen, (JK); three waves, on 6, 10, and 11 September, running a week early, (PP). One answering the description of Brewster's was seen on 14 September, (PL). A Nashville on 19 August was a week early, (PP). Blackburnians were the most frequently seen at Burlington, (PL), but there was a strong migration of Chestnut-sided, (PP). A Northern Waterthrush on 15 August and Mourning on 20th were early, (PP).

Finches. A Purple Finch on 6 September was early, (PP). A small flock of Pine Siskins on 23 September was the first in the area for a number of years, (PK).

Contributors: Gladys Black, Pleasantville; Eldon Bryant, Akron; John Faaborg, Jefferson; Donald Gillaspey, Lamoni; Mrs. Darrell Hanna, Sioux City; Paul Ferguson, Union Slough; Russell Hays, Waterloo; F. W. Kent, Iowa City; Jim Keenan, Ogden; Dick Knight, Ames; Pearl Knoop, Marble Rock; Darwin Koenig, Castalia; Peter Lowther, Burlington; Peter Petersen, Jr., Davenport; Don Peterson, Union Slough; Barton Sutter, Hanlonton; B. O. Wolden, Estherville. WOODWARD H. BROWN, 4815 Ingersoll, Des Moines, 50312.

GENERAL NOTES

Unexpected Behavior of Buteos.—I believe most of us when thinking of the hunting techniques of the large buteos envision large birds soaring high above the earth which fold their wings and plummet to the ground to grasp their luckless prey. In the past several months I have witnessed two episodes which I feel were interestingly different.

On a warm Sept. 18, 1964, afternoon I was driving along one of our rural roads when I saw a hawk which showed much white on its back. It flew over a hill as I approached so I turned at the next corner and followed to see if it might not be the Krider's Red-tailed Hawk which is not common here. I reached the crest of the hill in time to see this bird glide to the ground a few feet from another hawk. This one raised its wings and hopped toward the newcomer in what appeared to be a threatening manner. The expected fight did not develop as the apparent attacker veered off to avoid contact but continued the clumsy and ridiculous appearing flopping and stiff-legged hopping in a rather aimless manner with the late comer joining in at times.

By this time I had ascertained that both birds were immature Red Tails but supposed I was watching one of the "dances" which some birds perform. As I watched and marvelled I spotted another young Red Tail a few hundred feet farther away going through the same maneuvers. There also was an adult sitting on a fence post at rest.

I watched for some time and concluded this was no "dance" but that these flopping, hopping, immatures were catching grasshoppers which were plentiful at that season.

On a chilly morning of April 12, 1965, I was loading hay in a field and noted a male Swainson's Hawk hunting in the area. As I watched I saw him hover with beating wings much like a Sparrow Hawk and then partially fold his wings and coast to the ground at an angle of about 45°.

Sensing that something interesting was about to happen I unwrapped my binoculars from the sweatshirt which is their carrier when I work in the fields in the more active migratory periods. This hawk lit alongside a clump

of dead fox-tail perhaps three feet square. He had obviously captured nothing but instead of leaving he slowly stalked around the clump with his eyes focused on the center of the grassy spot. This stalking process was very much in a stealthy slow motion manner. After a few deliberate steps he would raise his head and look for possible danger and then resume his stealthy circling. This kept up for several minutes before he abandoned his vigil and flew away. ELDON BRYANT, R.R. #1, Akron.

The Hen Pheasant.—My sister always had pets. She was an invalid most of her life, doomed to inactivity, so that her pets were her constant and intimate companions. She talked to them a great deal, and was quite sure that they understood her—or, at least, got the gist of her remarks. At one time it was old Polly, the senior hen, first in the pecking order. Again it was Fidge, the white pigeon who frequently visited her window sill, and once entered her room and threw everything off the bureau onto the floor.

In better times there was a devoted husband, a horse, a goat, a big dog, and a flock of poultry. They all occupied a small acreage on the brow of a hill, the last building lot in that direction for some miles. The adjacent land slopes steeply westward to the creek. It is an abandoned pasture, grown up with weeds and wildflowers: blackberries, goldenrods and asters in their seasons—a perfect place for ground-dwelling birds.

In the spring of 1921, let us say, Sister obtained a setting of eggs of the Mongolian (Ring-necked) Pheasant, and entrusted them to a broody hen. The foster mother did her duty well. Several little pheasants emerged duly. They were small and delicate, subject to digestive and respiratory disorders. The chickens did not like them very well. They were irresistibly attractive to cats, crows, and such. By the time they were fully weaned only two remained. Something happened to one of these "and then there was one"—a little hen. She lived intimately with the chickens, modestly and unobtrusively, and slept with them in the hen house at nights.

This one survivor was especially precious to her mistress. Sister cared for her in every possible way; saw to it that she got her share of food; doubtless gave her special tidbits; talked to her regularly; called her by her own one word "Peet-peet".

The hen pheasant is a very pleasing bird. Her figure is neat and graceful, far excelling in beauty the more pudgy hens, bred for eggs and meat. She steps daintily over the lawn and cocks her eye for a morsel of food. She holds her head up frequently with a thoughtful mien, and is alert to all sounds and sights, as a wild bird has to be.

One autumn afternoon when Peet-peet was foraging on the lawn a cock pheasant in full plumage, decorated with crimson and gold, alighted on a nearby fence post. Peet-peet saw the dazzling monster and fled for her life to the shelter of the hen-yard. Shortly afterward she stole back to the lawn to take another look, but the visitor had gone. Peet-peet survived the winter, living peacefully with the other poultry, and cared for in a very personal way by my sister.

One bright May morning when the sun had just arisen, spreading a magic light over all the landscape, my sister was astounded to hear the voice of her little pheasant just outside her bedroom window. Now the bedroom was on the second floor at the front of the house, overlooking the roof of the front porch, where the pheasant had never known anything about it. Beside, the pheasant is a ground bird. It never willingly goes as high as a porch roof. Certainly this one never had done so. But there she stood, head up, her new nuptial plumage of delicate grays and browns all smooth, and really recplendent in the morning sunshine.

"Peet-peet" said the bird. Sister went to the window. "What do you

want, Peet-peet?" she said. "Peet-peef" again. "Well, what do you want, Peet-peet " "Peet-peet". And away flew Peet-peet into the thicket of weeds and brambles whence had come that dazzling, irresistible apparition of the autumn before.

The events were exactly as I have stated. Though one part of me cannot believe it, the other part is sure that the little bird hunted up her foster mother to say "Good-bye". HENRY S. CONARD, 616 Broad St., Grinnell.

Nighthawk in Insect Trap — On the morning of May 26, 1965, a Nighthawk was found in an insect trap atop the Insectary building at Iowa State University. The trap has a two foot wide opening with a screened fan to draw the insects to it. There is no light on the trap which is 25 feet in the air. The bird was kept throughout the day and released unharmed that night. — DICK KNIGHT, 332 Westwood Drive, Ames.

BOOK REVIEWS

North American Bird's Eggs—Chester A. Reed—reprinted by Dover Publications, Inc. New York—372 p. with over 600 photographs and many line drawings—1935—paperbound—\$3.00.

This reprint also includes a revision updating the terminology. Unfortunately it still follows the old A.O.U. order. Almost all species are covered. The range and nesting data including egg size (in inches) are given in addition to a photo of an egg, actual size. Of course eggs of some species vary greatly in coloration but a good job has been done in selecting a typical pattern.

Since it is illegal to collect eggs today, the chief value of this book is in identification of nests when the birds are absent. Avid field students will find this a valuable book for their libraries. It is unfortunate that the current species order could not have been followed, but the index provides easy reference. ed.

Bird Display and Behaviour—Edward A. Armstrong—reprinted by Dover Publications, Inc.—New York—431 p., 62 photos, many line drawing—1965—paperbound—\$2.50.

Since it was published nearly twenty years ago Armstrong's book has been considered one of the basic references on bird behavior. This edition has been revised slightly but the extensive bibliography was not revised. The author covers behavior in courtship, nest building, feeding, display, gaping, song, dances, flight and social structure. Much of the basic experimentation in this area is described. The author's style is quite readable. The study of behavior is an area where much that has been observed is not fully understood and the amateur can make a real contribution. All libraries, especially those connected with schools, should have this volume on their shelves. ed.

Life Histories of North American Nuthatches, Wren, Thrashers, Thrushes, Kinglets, Wagtails, Shrikes, Vireos, Blackbirds, Orioles, Tanagers and Their Allies—A. C. Bent—reprinted by Dover Publications, New York—1,887 p., many photographs in four volumes—1965—paperbound—\$2.75 each volume.

Four more volumes of the Bent series have now been reprinted by Dover, completing the reprinting of published volumes. The two remaining in the series, on the finches, will probably be issued next spring by the Smithsonian Institution. Many readers are familiar with these books but anyone who is not should certainly examine them. The material in the above volumes was first published in the past ten to twenty years. It deals with plumage, care of young, courtship, nesting, voice, food, enemies, migration, eggs and range.

The value of this series cannot be overstressed. They provide the backbone for any reference library. The quality of these reprints is superior to the original editions. The cost is also a fraction of the cost of the out of print originals, which are often not to be found. ed.

A Field Guide for Locating Bald Eagles at Cassville, Wisconsin—Terrence N. Ingram—Southwestern Wisconsin Audubon Club—24 p., 3 maps, 2 graphs—1965—paperbound—\$1.00.

This small booklet will be of interest to Iowans planning to observe wintering eagles in the Guttenberg area. The author has spent a vast amount of time in the field in this area and is well qualified to write on his subject. One of the purposes in the publication of this material is to obtain funds for further research into the eagles' wintering habits. As a large percentage of the Bald Eagles in the United States winter along the Mississippi River, knowledge of this population could become critical in the fight to save this species, our national bird.

The author gives details on the best time of the year for eagle observation, time of the day and observation points. He also suggests methods for photography and observation from blinds. The graphs give population data on the eagles for the past two winters. The maps pinpoint observation points, feeding areas, feeding perches, and roosting areas. The booklet can be obtained directly from the author at Apple River, Illinois. ed.

Wintering Bald Eagles At Cassville, Wisconsin, 1964-65—Terrence N. Ingram—Southwestern Wisconsin Audubon Club—24 p., 6 graphs—1965—paperbound—\$2.00.

A companion volume to the one reviewed above, the bulk of this booklet appears in this issue of *Iowa Bird Life*. Virtually all of the text appears in this journal, but graphs pertaining to weather conditions do not appear. These add to the data and some may wish to purchase the booklet to have the full story. As mentioned in the preceding review, the funds well aid in eagle research. The publication can be obtained from the author at Apple River, Illinois. ed.

Systematics and the Origin of Species—Ernst Mayr—Dover Publications, Inc.—New York—334 p. with maps, chart and tables—1965—paperbound—\$2.25.

A reprinting of Dr. Mayr's monumental work first published in 1942. It was for his writing of this book and the more recent **Animal Species and Evolution** that he received the Brewster Medal at the Columbus A.O.U. meeting in August of this year. Much material is covered in this work that is not covered in **Animal Species and Evolution**.

In this volume Dr. Mayr correlates the evidence and the points of view of modern systematics with those of other biological disciplines. It serves as a good introduction to this complex field. To most bird watchers this area is one of complete mystery—why are the dowitchers separated into two species while the towhees are grouped into one? If you have wanted to delve into such questions this book will provide you with a springboard. While it is what one must call heavy reading for most bird watchers it is quite rewarding for the serious student. ed.

A Speed Index to Waterfowl—John A. Ruthven and William Zimmerman—Moebius Printing Company, Milwaukee—112 p., 263 illustrations in color—1965—cloth—\$6.95.

For the waterfowl hunter as well as the sportsman conservationist, here's the first comprehensive color identification and reference book of North American Waterfowl, covering 62 species. Rapid reference for species identification, using the marginal color bands of the book, directs the reader to the proper section by referring to the dominant color of the bird being identified. In addition, a complete color cross-listing provides a handy identification reference.

Every detail of color, body shape and feather configuration was taken from actual bird specimens. All descriptions detailing the size, food, source, habitat and bird voice have been authenticated by leading ornithologists. The

foregoing descriptions accompany illustrations of the birds at rest on left-hand pages, while on right-hand pages, the same birds appear in flight with a brief description of each bird's flight characteristics. In addition, waterfowl flyway maps appear on the end sheets.

This book is 4 $\frac{3}{4}$ "x11 $\frac{1}{4}$ ", so it will fit into a jacket pocket. Moulting plumages are included. Grebes, loons and the coot are also illustrated. The guide is a must for hunters and a valuable tool for bird watchers. ed.

The Golden Eagle (novel)—Robert Murphy. Illustrated by John Schoenherr—E. P. Dutton and Co., Inc., New York—145 p.—1965 cloth—\$3.95.

Another moving novel by the author of **The Peregrine Falcon**. Murphy's experience as a falconer give him a fine insight into the life of one of our most magnificent predators. Of course it is doubtful that one bird could encounter so many obstacles in the course of a lifetime, but the author brings out the pitfalls faced by the species. There is certainly no exaggeration of these pitfalls. This reviewer has observed nestlings slain by person or persons unknown in Colorado.

The only fault which could be found was outdated terminology of one or two species of birds. The style is quite readable and the author keeps the story moving nicely. The artist is not quite as adept as the artist of **The Peregrine Falcon**. This novel cannot be recommended too strongly for libraries, especially school libraries. Books of this type will go a long way toward developing sympathy for wild creatures among young people. ed.

\$100 AWARD IN ORNITHOLOGY

In order to stimulate research in the field of ornithology through the use of **bird banding** techniques or available banding data, the **EASTERN BIRD BANDING ASSOCIATION** makes an award of \$100 to a student, undergraduate or graduate, who uses bird banding in an ornithological study.

APPLICATIONS:

The student merely writes a letter requesting consideration. His letter must be accompanied by a description of his project and must explain how he uses bird banding. His description must be signed by the head of his department.

QUALIFICATIONS:

The college or university must be within the United States.

If the applicant is an **undergraduate**, he must: be either a junior or senior; major in zoology or biology; earn at least a B average; **USE BIRD BANDING AS PART OF HIS RESEARCH.**

If the applicant is a **graduate student**, he must major in ornithology, and he must **USE BIRD BANDING AS PART OF HIS THESIS.**

Although the Eastern Bird Banding Association would like to publish any papers which the recipient may write as a result of his studies, this is not a prerequisite.

TIME LIMITATION:

The student's research description should be submitted prior to January 1, though an application received within reasonable time thereafter may receive consideration.

ADDRESS APPLICATIONS AND QUESTIONS TO:

Albert Schnitzer
Chairman, Memorial Award Committee,
Eastern Bird Banding Association,
155 Wild Hedge Lane
Mountainside, New Jersey

NEST CARD PROGRAM

The North American Nest Card Program is winding up the 1965 nesting season, and many cards have already been returned. There are still many cards in the hands of the individual recorders, however, and these should be returned to us as quickly as they are completed. We are preparing the data for transferral onto IBM cards, and a large bulk of material is needed for the first run, to be started soon.

Region Centers may determine for their members whether their cooperators should return the cards to the center first, in order to complete local records, or whether they may be sent directly to us as they are completed. Laboratory of Ornithology, 33 Sapsucker Woods Road, Ithaca, N.Y.

1965 Christmas Count Dates —
December 22, 1965 — January 3, 1966
 Send counts to
Woodward Brown, 4815 Ingersoll, Ave., Des Moines
by January 15, 1966.
 See September, 1964, I.B.L., p. 79 for details.

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I certify that the statements made by me above are correct and complete.
 Peter Petersen, Jr., Editor

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